

REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

Applicants acknowledge with appreciation the indication in the Office Action that claims 59-68 are allowed.

Claims 45-47 have been amended to clarify the claimed subject matter.

Claims 45-58 stand rejected under 35 USC 102(e) as anticipated by Sheffield (USPN 3,884,417). The Applicants respectfully traverse this rejection.

Claims 45-47 emphasize that the inlet and outlet of the chamber include inclined portions for contacting respective ends of the valve element to enable the valve unit to be closed in response to fluid flow in either direction within the chamber.

Sheffield clearly lacks this subject matter in that the second inclined ends of Figs. 1 and 2 of Sheffield's nozzles do not constitute a valve seat with a dimension sufficient to seat valve element 15, nor are they described in Sheffield's disclosure as providing a seat. Thus, for at least this reason, withdrawal of the rejection of claims 45-47 is deemed to be warranted.

The Applicants submit that claim 47 further distinguishes over Sheffield by the recitation of a wedge-shaped or conical

valve element whose input-side apex angle is smaller than that of the output side. The present specification discloses in paragraph 0087 that this claim feature provides an advantage of reducing the pressure loss of the fluid as it flows through the chamber and increases the wedge effect provided by the force of the fluid acting on the valve element.

Claim 49 recites that the valve element and valve-element urging component of claim 45 are magnetically attracted to each other. Sheffield discloses a valve element and urging component that are magnetically repulsed by each other. Thus, claim 49 is not anticipated by Sheffield.

Claim 51 recites initially applying a higher amplitude vibration to the chamber than that applied thereafter. Sheffield lacks this subject matter, and thus, claim 51 is not anticipated by Sheffield.

Claim 52 recites that contact friction between the valve element and an inner wall of the chamber is reduced by imparting a vibration having a predetermined frequency and amplitude during a predetermined period before and after the opening of the outlet by the valve element. Sheffield lacks this subject matter, and thus, claim 52 is not anticipated by Sheffield. Claim 53 is allowable due to its dependence from claim 52.

Claim 54 recites that the opening or closing state of the outlet or an opening level thereof is varied as a frequency or an amplitude of a vibration applied to the chamber is varied and as a motional amplitude of the valve element is varied by the varied vibration. Sheffield lacks any teaching of this subject matter, and thus claim 54 is not anticipated by Sheffield.

Claim 57 recites that the exciting component varies the opening or closing state of the outlet or an opening level thereof by varying a frequency or an amplitude of a vibration applied to the chamber and by varying a motional amplitude of the valve element by the varied vibration, and the exciting component superimposes a vibration having a frequency and an amplitude different from those of a main vibration on the main vibration. Sheffield lacks any teaching of this subject matter, and thus claim 57 is not anticipated by Sheffield.

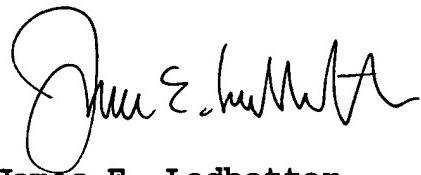
Claim 58 recites that the exciting component varies the opening or closing state of the outlet or an opening level thereof by varying a frequency or an amplitude of a vibration applied to the chamber and by varying a motional amplitude of the valve element by the varied vibration, and the exciting component imparts such a vibration that a gas is released from the outlet and fluid is not discharged from inside the chamber when fluid is within the chamber. Sheffield lacks any teaching of this

subject matter, and thus claim 58 is not anticipated by Sheffield.

In view of the above, it is submitted that all pending claims distinguish over Sheffield and that the anticipation rejection based thereon should be withdrawn. It is submitted that this application is in condition for allowance, and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,



James E. Ledbetter  
Registration No. 28,732

Date: September 6, 2006  
JEL/DWW/att

Attorney Docket No. L8612.03104  
STEVENS DAVIS, MILLER & MOSHER, L.L.P.  
1615 L Street, N.W., Suite 850  
P.O. Box 34387  
Washington, D.C. 20043-4387  
Telephone: (202) 785-0100  
Facsimile: (202) 408-5200